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President's Message

In beginning this, my first note to "Contact" readers, I want to express Council's appreciation for the excellent work of the Grants and Scholarships selection committees. I met with each committee during the competition period and thanked the members for their work in person. Now, I want to express my gratitude publicly in the pages of "Contact," not only to the members of the committees for all grants, scholarships, and awards, but also to the thousands of reviewers who read the proposals of the applicants and the nominees, and submitted their comments.

Given the workload of the committees, I was very conscious that my visits with them were an imposition on the time of very busy people working to a tight schedule, but I hope that they found the meetings as constructive as I did. Many useful suggestions came out of those meetings, ranging from ideas for improving communications to clarifications of policy, and all will be taken into consideration.

I wish that it were possible for the public to see the committees at work. One doesn't have to be an expert in the field to recognize the hard work involved, and to appreciate the quality of thought and care that goes into the decisions. As far as I am concerned, this extensive involvement of the research community in judging the applications and making the funding recommendations to NSERC is a large factor in the integrity and credibility of our award process. It imposes a very strict accountability on everyone involved -- from NSERC Council, through the selection committees, all the way to the grantees whose research is supported and the students who receive support. The outcome is a return on the public investment in university research in which Canada can take pride -- very good research in all the modern areas of science and technology, and quite outstanding research in many important fields. And it is all accomplished with extraordinarily high productivity by world standards.

However, our recognition of the importance of the time volunteered for NSERC work means more than a public expression of gratitude. We are determined to offer what support we can to help the committee members work effectively, and I am proud to acknowledge that the members have been generous in their praise of NSERC staff on that score. It is important also to have convenient physical arrangements for the work of the committees, and we try to keep improving those as well. This year, we introduced a number of

changes by spreading the February meetings over three weeks, and holding them for the first time at NSERC. The favourable comments from members indicate that we are on the right track. We will learn from our experience this year, and try to make things even better for 1997.

The month of March marked the passage of another federal budget, including the news of a further small (3.5%) decrease in our budget, and that of most other agencies, for 1998-99. This reduction was not entirely unexpected, but we had hoped that the very positive comments of the Standing Committee on Finance about the granting councils might have headed it off. In a recent interview in the March issue of "University Affairs," I noted that while restraint in federal grant budgets is one factor affecting university research, the erosion of provincial infrastructure support for university research poses an equally challenging problem. This issue concerns all of us, and I will be returning to it often in the months ahead. I want to make sure that we don't concentrate on the cuts in NSERC's budget to such an extent that we forget about the other half of the research costs which are now being provided through the universities.

Nevertheless, much is happening to make me optimistic about the future. Circumstances have combined to put a public spotlight on the importance of Canadian university research in science and engineering. It is now clear that the most spectacular growth in the Canadian economy, and the best employment gains, are occurring in those companies and sectors whose success depends on access to advanced knowledge and to people who know how to use it productively. Many companies are entering into partnership with the universities to improve their access to both, and NSERC programs are helping that happen. At the same time, people realize that basic research is required to keep building the stock of knowledge available to Canadian society. The decision of NSERC Council to protect the Research Grants budget is widely understood and supported.

The new federal science and technology strategy ("Science and Technology for the New Century"), which I endorse with enthusiasm, is another very positive development. I believe that the Government is now increasingly looking on research and advanced training not as a cost, but as an investment. The strategy sets out to improve the return on that investment. And I can see many signs that individual Canadians are increasingly thinking the same way.

There will be difficult work for NSERC and the research community in the years ahead: we must learn to allocate increasingly scarce resources wisely, learn to work together to use them effectively, and strive constantly for the highest quality in everything we do. We must become as good as we can possibly be in using science and engineering to enhance the well-being of all Canadians.

Let me close with a quotation that I find very encouraging. "The future need not be a set of conditions that is always determined by others." Wise words -- I wish I knew their source.

- Tom Brzustowski

1996 National Science and Engineering Prizes Announced

Chemist Wins Gold

Dr. Stephen Hanessian, professor of chemistry at the University of Montreal, has been selected the 1996 winner of the Canada Gold Medal for Science and Engineering. The announcement was made by NSERC President Thomas A. Brzustowski at a Press Conference in Montreal on February 15.

The Gold Medal award recognizes Dr. Hanessian's extraordinary career at the forefront of international research in chemistry. "For over two decades, Professor Hanessian and his co-workers have had a dramatic impact on organic, bio-organic, and medicinal chemistry. His fundamental discoveries and innovative methodologies have been directly applicable to the synthesis of life-saving drugs, and the unique computer programs he has developed for analyzing molecular features are now widely used in industrial research laboratories as well as universities around the world," said Dr. Brzustowski.

His projects include such diverse areas as total synthesis of natural products, computer-assisted methods, asymmetric processes, novel synthetic methods, innovations in glycoside and oligosaccharide synthesis, immunochemistry and cell surface carbohydrates, molecular architecture and self-assembly of unique motifs, prototypes for enzyme inhibitors, receptor ligands and other medicinally important molecules. The researcher has also been responsible for establishing Montreal's reputation as a centre for producing some of the best trained organic chemists in the world. Many of these graduates now occupy important positions in the pharmaceutical industry.

Dr. Hanessian obtained his Ph.D. with the late Professor M.L. Wolfrom at Ohio State University in 1960. He then joined the Parke-Davis Research Laboratories in Ann Arbor, Michigan, where he was involved in various aspects of natural product chemistry. There he developed a well-known reaction that bears his name. In the fall of 1968, he moved to Canada and joined the faculty at the University of Montreal as Associate Professor. A year later, he was promoted to full professor. He has been McConnell Professor since 1979. In 1990, he was awarded the NSERC Chair in Medicinal Chemistry, a major university-industry partnership initiative with four major research companies.

Named the principal inventor in 25 patents, Dr. Hanessian is a consultant to and member of the advisory boards of several companies, prestigious scientific journals and learned societies. Among his many prestigious awards are the Palladium Medal of the Chemical Institute of Canada (1988), a Killam Fellowship (1989), the Bell Canada Forum Award (1991), and the A.C. Cope Scholar Award of the American Chemical Society (1996).

The Canada Gold Medal honours outstanding, sustained, lifetime contributions to Canadian research. Members of the academic, business and industrial communities, the government, and other sectors concerned with the advancement of research are eligible for nomination. An NSERC award committee makes the final selection on the basis of an international peer evaluation.

Outstanding Researchers Appointed Steacie Fellows

The four individuals selected to receive the 1996 E.W.R. Steacie Memorial Fellowships underline the extraordinarily high calibre of research and training in Canadian universities. According to Dr. Brzustowski, they "are creating international recognition for Canada in some of the most exciting fields of science and engineering." The 1996 Steacie Fellows are:

Dr. Catherine Kallin, an outstanding scientist in the Department of Physics, McMaster University. She has demonstrated exceptional leadership and accomplishment in theoretical solid state physics, particularly in the theory of high temperature superconductors. Dr. Kallin and her collaborators have been studying microwave measurements on high-temperature superconductors, and using the data to determine the electrical and magnetic properties of these superconductors and to understand why the materials are superconductors at all.

Dr. Ming Li, a gifted mathematician in the Department of Computer Science, University of Waterloo. He has carried out important work in the theory of computation and "Kolmogorov complexity" and in the application of his ideas to fields such as computational biology. His book (co-authored with Paul Vitanyi), "An Introduction to Kolmogorov Complexity and Its Applications," was the first comprehensive book in the field. Used worldwide in graduate seminar courses, it has inspired researchers from philosophers to marine scientists to use the Kolmogorov complexity theory of randomness in their research.

Dr. Jed Harrison, Department of Chemistry, University of Alberta, recognized worldwide for his ingenuity and imagination in applying microchip technology to chemical analysis. His work is being closely followed for its industrial and medical potential. Using micromachining techniques, Dr. Harrison and his collaborators have fabricated tiny three-dimensional structures that can carry out chemical analyses on a piece of silicon a couple of centimetres square. The potential for the application of the devices is enormous. While their small size would make test kits easily portable, a key advantage for military and environmental applications, their speed -- only seconds are needed to complete chemical analyses -- would eliminate anxious waiting for test results.

Dr. Demetri Terzopoulos, Department of Computer Science, University of Toronto, cited for his breakthroughs in the evolving fields of computer vision and computer graphics. His discoveries have created enormous excitement in the scientific community and among the public. His virtual fish are remarkable computational

models, autonomous artificial creatures with "eyes" to see their virtual world and "brains" that govern their actions. Dr. Terzopoulos's work on human facial modelling is equally exciting. He has produced what is widely recognized as the most realistic biomechanical/expressive model of the human face to date. Among other applications, modelling faces can play a role in planning reconstructive facial surgery and predicting its results.

Universities across Canada submit the nominations for E.W.R. Steacie Memorial Fellowships. Fellows receive their salary plus benefits, allowing them to focus on research full-time, free from teaching and administrative duties, for up to two years.

Doctoral Prize Winners Selected

The following individuals, winners of NSERC's national doctoral prize competition for 1996, will each receive $5,000 and a silver medal for their outstanding doctoral research:

Dr. André Berthiaume, Department of Computer and Operations Research, University of Montreal, is working in the forefront field of "quantum" computing. His doctoral research has increased the likelihood that such a computer may eventually be built.

Dr. John Corrigan, Department of Chemistry, University of Waterloo, is cited for a masterful study that has given scientists important new insight into transition metal clusters and the poorly understood chemistry of small molecule activation.

Dr. Alexander Wolfe of the Department of Geography, Queen's University, completed an outstanding interdisciplinary study that led to the discovery of a region that escaped glaciation in the Eastern Arctic and to insights into the sensitivity and history of its ecological systems.

Dr. Chi Wu, Department of Electrical and Computer Engineering, University of Toronto, made a groundbreaking contribution that has advanced the state-of-the-art of optoelectronic components for fibre optic communication systems.

Each university in Canada may nominate two candidates for the Doctoral Prize.

The awards will be presented in June at a ceremony in Ottawa. Additional information on the nine award winners can be obtained from the Council's Web Site: http://www.nserc.ca/news_e.htm.

STATUS REPORT:

Task Force on Women in Science and Engineering

In the spring of 1995, NSERC created a Task Force on Women in Science and Engineering with the mandate to

"...advise Council on how to create an environment that facilitates and encourages greater participation of women in science and engineering research in Canada, particularly through the core programs."

The task force met on several occasions over the summer and fall, both in person and via conference calls to develop a number of recommendations for Council consideration. At the January 1996 Council meeting, Dr. Monique Frize, the Chair of the Task Force, presented the report, which contained 21 recommendations addressed to NSERC, and one complementary recommendation addressed to the universities.

Recommendations to NSERC ranged from changes to program literature, through revisions to program policy and the guidelines governing membership of committees, and suggestions relating to publicity and tracking of women students and researchers, to a number of new program initiatives.

The report was received with a lot of enthusiasm, and Council made a number of general comments and suggestions. Given that the report was completed only in late December, and that the potential impact of the recommendations had not yet been analyzed by staff and Council's standing committees, Council agreed to adopt only its main thrusts at this stage. Council asked the Task Force to review its recommendations in the light of Council's comments, with a view to clarifying and strengthening the report for the June meeting. In the meantime, staff is preparing an implementation plan and is initiating consultation with Council's standing committees on a number of the recommendations.

Budget for 1996-97

The federal government's February 1995 budget resulted in a cut to NSERC's budget of 13.8% over three years. The upcoming fiscal year, 1996-97, is the second year of budget reductions. In 1996-97, Council will continue to protect core program funding to the greatest extent possible. Non-core programs are still being phased out and will contribute to meeting budget reductions over the next two years.

However, a shortfall did exist in the 1996-97 budget, and limited reduction to core programs was required. The budget for 1998-99 will be further reduced by 3.5% due to cuts announced in the March 1996 federal budget.

Table 1 presents NSERC's current forecast expenditure for 1995-96 and the planned investment for 1996-97. Readers should note that: a significant portion of the amounts shown under planned investment for 1996-97 is already committed for instalments of awards approved in earlier years; the amounts shown against the Collaborative

Special Project Grants are totally committed, as this program has been terminated; and funds for new projects under Research Networks are extremely limited.

Table 1: NSERC Budget,1996-97 (millions of dollars)

	Forecast Expenditure	Planned Investment
Activity	**1995-96**	**1996-97**
Core Programs		
Research Grants	187.7	191.3
Infrastructure Grants/ Major Facilities Access Grants	8.2	4.7
Equipment Grants	26.9	22.6
Collaborative Special Project Grants	3.8	3.4
Subatomic Physics Envelope	19.3	18.1
Subtotal	246.0	240.2
Research Partnerships		
Strategic Projects	40.3	39.7
University-Industry Projects	41.3	39.1
Research Networks	7.5	6.4
Technology Partnerships Program	2.9	4.4
Networks of Centres of Excellence	24.7	22.7
Subtotal	116.7	112.3
Training		
Postgraduate Scholarships	39.8	39.9
Postdoctoral Fellowships	10.0	9.5
Industrial Research Fellowships	3.4	3.9
Industry/Small University USRAs	2.4	2.4
Subtotal	55.5	55.6
General Support	1.2	1.2
Total Core Programs	419.4	409.3
Non-Core Programs	32.4	23.4
Grants and Scholarships Total	451.9	432.7
Administration	18.0	16.9
TOTAL	469.9	449.6

The dollar value (per annum) of NSERC stipends and salary contributions for 1996-97 is as follows:

Undergraduate Student Research Awards (Industrial/Small University) (per month)	900
Postgraduate Scholarships	
1st and 2nd year	15,600
3rd and 4th year	17,400
Industrial Postgraduate Scholarships	12,500
1967 Science and Engineering Scholarships*	21,300
Postdoctoral Fellowships	29,000
Research Reorientation Associateships*	29,000
Canada International Fellowships*	29,000
University Research Fellowships* and Women's Faculty Awards* (salary contribution)	30,500
Industrial Research Fellowships (salary contribution)	25,000
Stipends payable from research grants:	
postgraduate students (maximum)	15,000
postdoctoral fellows (minimum)	22,900
postdoctoral fellows (maximum)	27,500

* Programs are being phased out.

Planning for the Second Allocations Exercise Well Under Way

At its meeting in January, Council was presented with the report from the Chair of the 1994 Allocations exercise, and discussed the direction of the next exercise, which the community will be invited to participate in.

Council endorsed the following four principles as guidelines for the second exercise:

1. The scope of the exercise will be extended to include the development of vision statements by the disciplines which would address topics such as the evolution of a discipline and emerging new areas, large collaborative efforts required to address this vision, how a discipline can maximize its contribution to Canada's overall research effort, future research priorities for a discipline in the context of the needs and priorities for the country, and how a discipline plans to achieve its vision.

2. Ten per cent of the Research Grants funds will be designated

for reallocation between disciplines. This is one of the tools NSERC can use to adjust to the changing research environment.

3. An objective of the exercise will be to communicate the important achievements, opportunities, and challenges in university research to Canadian governments, universities, industry, and the general public.

4. The responsibility for this exercise will not rest with individual GSCs; there should be significant involvement by each discipline community, which could represent more than one GSC, including any appropriate societies or bodies. To assist the disciplines in this exercise, Council has agreed to set aside up to $200,000 to help defray the costs of developing vision statements.

   Council spent a great deal of time discussing how the submissions of the disciplines would be assessed, paying serious attention to the community's reaction to the last exercise. It agreed that the redistribution of 10% of the Research Grants funds will be undertaken by a broadly based allocations committee including all of the major discipline groupings.

   The submission of each discipline would answer the question: "Why is it important for Canada that this discipline receive some of the funds available for reallocation?" It will be up to each discipline to decide which arguments it will use in its submission.

   Council asked staff to work with committees of Council and the community to prepare detailed procedures based on the ideas expressed at the meeting. Because of the nature of the changes envisaged by Council, appropriate documentation summarizing Council's ideas on the evolution of this process will be released to the community in the coming months, along with the Chair's report, to stimulate discussion and feedback on this important topic. Council will make a final decision on the process at its June meeting.

Two Council Members Appointed

Industry Minister John Manley recently announced the appointment of Angus Andrew Bruneau and Julie Payette to the Natural Sciences and Engineering Research Council for a term of three years.

Angus A. Bruneau is the Chairman, President and CEO of Fortis Inc. He obtained his B.A.Sc. in Engineering Physics at the University of Toronto and his Ph.D. in Physical Metallurgy at the University of London. Over the past thirty years, he has held various academic positions with Memorial University of

Newfoundland and the University of Waterloo, and has served as director of a wide variety of companies. Dr. Bruneau has also served on committees and the boards of several national and international research and economic development organizations, including the National Research Council, the Organisation for Economic Co-operation and Development, and NSERC. A founding member of NSERC, he also served on its Executive, Allocations, University-Industry Interface, Strategic Grants, and Grants and Scholarships committees. His honours include the Gold Medal from the Canadian Council of Professional Engineers and the Julian C. Smith Medal from the Engineering Institute of Canada.

Julie Payette was selected a member of the Canadian Astronaut Program in June 1992. She obtained a Bachelor of Engineering from McGill University and a Master of Applied Science from the University of Toronto, and is currently working towards a doctorate in Electrical Engineering at McGill. Ms. Payette has worked with IBM Canada and the Speech Research Group of Bell-Northern Research. Her design and research experience includes areas such as human computer interfaces, speech processing in adverse environments, and the application of voice technology to space. Ms. Payette is a senior member of l'Ordre des Ingénieurs du Québec, and is one of two nominated Canadian specialists on the NATO International Research Study Group on speech processing. In 1994, she was awarded the Young Engineer Achievement Award by the Canadian Council of Professional Engineers. Ms. Payette's appointment demonstrates the government's support for NSERC's recommendation that young researchers be appointed to the Council.

USE OF HUMAN SUBJECTS:

Councils Aim for a Common Approach

Research involving human subjects is an area that calls for clear ethical guidelines in order to ensure the safety of the public while preserving the integrity of the research process.

Traditionally, the amount of research in NSERC-supported disciplines involving human subjects has been limited. In recent years, however, issues associated with emerging new research areas such as human genetics, together with public policy issues relating to access to personal data, confidentiality and privacy, which result from the increasing computerization of databases, have all contributed to raising new ethical questions.

In addition, a review of research ethics boards in medical schools by the National Council on Bioethics in Human Research indicated that practices and processes varied considerably and that the current guidelines did not provide sufficient guidance for the research ethics boards in many

areas. Consequently, the granting agencies cannot assume that there is sufficient accountability with respect to the use of human subjects in research; clearer guidelines and procedures are needed.

NSERC does not have its own guidelines for research with human subjects. Its grantees are required to follow either the Medical Research Council (MRC) or the Social Sciences and Humanities Research Council (SSHRC) guidelines, whichever are most appropriate for their area of research.

In 1994, MRC initiated an exercise to update their guidelines for research with human subjects. Following consultation with SSHRC and NSERC, it was agreed that an attempt be made to develop one set of guidelines which could be used for all research involving human subjects. It was recognized that the ethical issues facing the three councils are similar but that each discipline may have research areas which raise particular ethical issues regarding the use of human subjects.

A working group was constituted to revise the guidelines and has held meetings over the last year. The final draft guidelines will be ready in April 1996. The draft guidelines will be widely distributed to researchers who use human subjects, to research ethics boards, and to university administrators.

Comments will be solicited over the summer and the goal is to have new tri-coucil guidelines for research with human subjects in place by the end of 1996. The new guidelines will be more prescriptive in terms of process than either the current MRC or SSHRC guidelines. Once the new guidelines are in place, the Councils will have greater confidence in the accountability structure for research using human subjects.

Intellectual Property Management Awards Announced

The results of the competition for funds under the Intellectual Property Management initiative were recently announced. Twenty awards will be shared among 35 institutions. The grants, totalling $1.8 million per year, will be tenable for three years. The success rate, in terms of amounts requested, is 56%.

The Intellectual Property Management initiative was established to strengthen Canadian universities' ability to manage intellectual property arising from NSERC-funded research, and to attract industrial partners to exploit it commercially. Council approved a single competition, with the future of the initiative to depend on an assessment of its impact on the universities' technology transfer activities. The selected proposals were chosen particularly for their quality and incremental effect on the universities' ability to transfer

technology effectively.

The corresponding support offered by the universities as their contribution to the new activities amounts to $12,450,195, which reflects the high priority being given to intellectual property issues. Among the several innovative approaches to managing intellectual property were the involvement of students, enlisting corporate sponsorship, emphasizing marketing, linkages with venture capital firms, and the sharing of common resources among universities.

Intellectual Property Management Awards

Lead University	Associated Universities	Annual Award $	3-Year Award $
Victoria		85,000	255,000
Simon Fraser		70,000	210,000
TRIUMF		30,000	90,000
British Columbia		100,000	300,000
Alberta	Calgary	100,000	300,000
	Lethbridge		
Saskatchewan	Regina	147,500	442,500
Manitoba	Winnipeg	120,000	360,000
	Brandon		

Waterloo		84,000	252,000
Ottawa	Carleton	152,000	456,000
Guelph		62,000	186,000
Queen's		70,000	210,000
Toronto	McMaster	150,000	450,000
	Ryerson		
	Windsor		
	York		
Lakehead		50,000	150,000
Western		65,000	195,000
Sherbrooke		80,000	240,000
École de technologie supérieure		67,250	201,750
UQAM		50,000	150,000
Laval	UQAR	42,000	126,000
Montréal	École Polytechnique	100,000	300,000

Dalhousie	NSAC	165,000	495,000
	TUNS		
	UCCB		
	Acadia		
	SFX		
	UPEI		
Total requested	9,651,700		
Total awarded		1,789,750	5,369,250

NSERC and NRC Agree to Jointly Manage and Fund New S&T Initiative

NSERC and the National Research Council (NRC) recently signed an agreement that will bring $25 million to university research over five years. The aim is to create strong three-way linkages and synergy between NRC's institutes and researchers in universities and the private sector.

The funding will be provided to university researchers to develop cooperative activities with NRC and industry. Eligible activities include research projects, programs, networks, chairs, equipment or facilities, and workshops. Proposals should address the following research priority areas:

- biotechnologies;
- construction technologies;
- engineering technologies, including aerospace and marine technologies;
- information and telecommunications technologies, including microelectronics and optoelectronics;
- manufacturing technologies, including materials and

chemical processes and environmental technologies, integrated manufacturing, and sensor and control technologies;
- molecular sciences, astrophysics, national measurement standards.

The deadline for receipt of applications for the first regular competition is June 1. However, researchers in a position to submit immediate proposals for a preliminary round were invited in January to do so until February 16. Following a review of 29 excellent applications, 12 outstanding proposals were approved for funding (the list of awards can be found on NSERC's Web Site: http://www.nserc.ca/news_e.htm). All competitions for funding will be administered by NSERC's Research Partnerships Program unit under the general direction of an NRC/NSERC Steering Committee.

Applications will be considered by a project review committee in accordance with existing NSERC review practices and regulations. In assessing research proposals, NRC and NSERC will focus on those proposals which develop partnerships with industry, especially small- and medium-sized companies, and offer the greatest potential for knowledge and technology spin-offs. The funding mechanisms will be those used in the NSERC Research Partnerships Program.

Complete information on eligibility and application procedures is available from university research grants offices and NSERC's Web site (http://www.nserc.ca/programs/recent.htm). Questions should be addressed to: Walter S. Vieira, NRC/NSERC Research Partnership Program, NSERC, tel.: (613) 947-6374, fax: (613) 992-5337, E-Mail: wsv@nserc.ca.

Research Update

Retail sector to be studied

A unique collaboration between Ryerson Polytechnic U. and the U. of Western Ontario has led to the creation of the Eaton Chair, Canada's first chair in retailing. The initiative, which will focus on new technologies and improved performance in the sector, is funded by The T. Eaton Company Limited and the NSERC/SSHRC Chairs in the Management of Technological Change program. With an annual value of more than $200 billion, retail sales account for approximately one-third of the country's gross national product, and the industry employs 1.4 million people.

Heading the new program are Drs. Ken Jones, Director for the Centre of Commercial Activity at Ryerson Polytechnic U. and Michael Pearce, an Associate professor of Business Administration in the Western Business School. Eaton's has made a $500,000 leadership donation and launched an industry campaign to provide a $2 million endowment, which now involves more than 40 corporate sponsors.

Research program aims for better roads and a cleaner environment

Canadians spend more than $8 billion yearly on roads and road maintenance. And it's not hard to see why. Roads in the country face incredible weather extremes, from -40C in winter to plus 60C (at road level) on a hot sunny day. Add to that the weight of increasing truck freight, with greater axle-loads and radial tires that increase pressure on the road surface. It's a sure recipe for that annual spring curse -- potholes.

Today, governments are much more interested in getting better quality for road-building dollars. More durable paving materials -- the focus of a new NSERC industrial research chair at the U. of Calgary -- are clearly the way of the future. The new research program -- led by Dr. Ludo Zanzotto, and created with the support of Husky Oil, a major producer of high quality Alberta asphalts, and Novacor Chemicals -- will look at a wide range of bituminous products including paving and roofing asphalts and crack sealants. A key research topic will be the use of post-consumer plastic waste and used tires to increase asphalt durability (and reduce pressure on landfills).

Newfoundland invests in the future of the fishing industry

The Northwest Atlantic has -- for half a millennium -- provided a bountiful and, until recently, sustainable harvest of fish for Canada and other countries. Despite the major economic and social importance to the nation and the province, the study of the major fish stocks and their place in the ecosystem has been extremely limited, especially in terms of university-based research and training.

A new NSERC chair, boosted by the largest-ever commitment to a chair from a provincial government, signals a major reversal in approach. It establishes a new program in fisheries conservation at Memorial U. of Newfoundland, and a greatly expanded role for ecosystem studies. The chair is headed by Dr. George Rose, a highly respected scientist and lead researcher of the Northern Cod Science Program. His program will receive a $1.5 million contribution from the province of Newfoundland, $500,000 from NSERC, and $375,000 from Fishery Products International.

The research carried out by the chair will be targeted specifically to the ecological understanding of groundfish population dynamics and the development of a conservation-based fishery. The chair will also serve as a focal point for collaboration between Memorial U. and the user sectors, industry, the federal Department of Fisheries and Oceans (DFO) and the provincial Department of Fisheries, Food and Agriculture. DFO is strongly supporting the chair through the provision of time on its ships -- worth $450,000 annually -- and through greatly expanded cooperative research with Memorial.

NSERC is going with the times. Following the unprecedented

expansion of the World Wide Web during the last two years, we will be retiring our Gopher site as of September 1, 1996. NSERC information now available on the Web features news, great stories about Canadian Researchers, and comprehensive program information. Our address is http://www.nserc.ca.